REMARKS

New claims 82 - 86 are added. Hence, claims 59-86 are all the claims pending in the application.

Statement of Substance of Interview

Applicant thanks the Examiner and Supervisory Patent Examiner Don Wong, for conducting an interview on April 19, 2006 with the undersigned and others listed in the Interview Summary.

As noted in the Interview Summary, claim 59 was discussed.

The Evian reference was discussed and the Examiner explained how he read the claims on the Evian reference.

Drawings

The drawings are objected to because figures 3 – 8 are discussed in the Background section of the application and the Examiner suggests labeling them as prior art. Applicant submits replacement drawing herewith in which figures 1 through 6, 7a, 7b, 8a and 8b are labeled "Related Art" consistent with the discussion of those figures in the specification under the heading "Description of the Related Art." It is respectfully submitted that there is no evidence in the record that figures 3 – 8 show subject matter that is prior art within the ambit of any section of 35 U.S.C. § 102.

Replacement drawings for a complete set of the figures is submitted herewith, including Figures 1 through 6, 7a, 7b, 8a and 8b discussed above.

Specification

The specification is objected to because of the title and the Examiner requests that any related applications be listed in the specification. The Examiner also identifies a typographical error in paragraph [55]. Applicant amends the title and specification as the Examiner requires.

Claim Objections

Claim 65 is amended as required by the Examiner and the objection is believed obviated.

Claim Rejections - 35 U.S.C. § 112, Second Paragraph

Claims 62 and 64 are rejected under 35 U.S.C. § 112, second paragraph as being indefinite for several reasons. Applicant amends claims 62 and 64 and respectfully requests the Examiner to withdraw the rejection. Further, Applicant respectfully submits that the term "XPath" is not objectionable, as the Examiner indicated during the interview.

Claim Rejections - 35 U.S.C. § 101

Claims 5458-81 are rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter. Applicant amends claims 59, 69 and 77 to state that the index structure is "contained in a computer readable storage medium." Claims 77, 80 and 81 are amended to recite a computer readable storage medium. It is respectfully submitted that the claims asserted in the Office Action to recite "descriptive material *per se*" (claims 59, 69 and 77 and the claims that depend therefrom) meet the requirements of 35 U.S.C. § 101 and recite statutory subject matter.

Claims 59, 69, 79 and 80 are rejected as reciting non-statutory subject matter also because allegedly "there is no functional relationship in the data structures." Claims 59, 69 and are amended to recite that the index structure is "contained in a computer-readable storage medium." Claims 79, 80 and 81 are amended to recite that the computer readable medium is a storage medium. It is respectfully submitted that each of these claims recites a functional interrelationship at least because the index structure has a functional interrelationship with the computer hardware and software components which permit the index structure's functionality to be realized such as by "locating the fragment of metadata."

The Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility, published November 22, 2005 in the Official Gazette ("Interim Guidelines"), as well as MPEP §2106, both acknowledge that a computer-readable medium encoded with a data structure is statutory. "In contrast, a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory." MPEP §2106 IV(B)(1)(a), and Interim Guidelines Annex IV(a). See also Interim Guidelines Annex IV, citing *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *In re Warmerdam*, 33 F.3d 1354, 1360-61, 31 USPQ2d 1754, 1759 (Fed. Cir. 1994) (claim to a computer having a specific data structure stored in memory held statutory product-by-process claim).

Since the claims recite that the index structure is contained in a computer-readable

storage medium, it is respectfully submitted that the claims define a functional relationship and

recite statutory subject matter. See Interim Guidelines Annex IV.

Not only do the claims recite a functional interrelationship, but they are eligible for patent

protection because as a whole they recite an invention that produces a "useful, concrete and

tangible result" and therefore have a practical application. See Interim Guidelines at pg. 1 and

Annex II(a), citing *State Street Bank & Trust Co. v. Signature Financial Group Inc.*, 149 F.3d

1368, 1373-74, 47 USPQ2d 1596, 1601-02 (Fed. Cir. 1998). In *State Street Bank*, the Federal

Circuit found that the mere transformation of data, representing discrete dollar amounts, into a

final share price, produced a useful, concrete and tangible result. See Interim Guidelines at

Annex II(B)(ii). In *AT&T Corp. v. Excel Comms., Inc.*, 172 F.3d 1352, 1358, 50 USPQ2d 1447,

1452 (Fed. Cir. 1999), the Federal Circuit found that the generation of a data field (a PIC field)

in a telecommunications billing system that represents information about a callers PIC ('primary

interexchange carrier"), "comfortably falls within the scope of §101." And of course, the claims

in *In re Lowry*, discussed above, are directed to a data structure which was found statutory under

§101.

Here, the claims as a whole are directed to an invention that, like the inventions in *State

Street Bank*, *AT&T* and *Lowry*, produces a useful, concrete and tangible result. For example, the

claims recite the index structure having a list of multi-keys and location information defining a

multi-key which corresponds to a combination of fields of metadata and for locating a fragment

of the metadata. See claim 59, for example. The application, in paragraph [26] of the substitute

specification, for example, describes problems when using an index structure that has only single keys for the indices. As described in the specification, using a single key can be inefficient when performing a compound conditional search of TV-Anytime Forum (TVA) metadata. The application describes providing an index structure of metadata that has multi-key indices which are "useful for the compound condition search for information." See paragraph [41]. The specification describes using a multi-key in such a structure. See, for example, paragraph [116] and Table 2. The claims are directed to an index structure that contains location information for the multi-keys listed in the index structure that can be used for locating a fragment of the metadata. Accordingly, the claims as a whole recite an invention that produces a useful, concrete and tangible result, and hence comfortably fall within the scope of §101.

Claims 79, 80 and 81 are rejected as reciting non-patentable subject matter because it is asserted that the claimed medium "can be interpreted as a signal (e.g., 'carrier wave', page 46)." Claims 79, 80 and 81 are amended to recite a computer readable storage medium, and it is respectfully submitted that these claims recite statutory subject matter.

New claim 86 recites an index structure with a list of keys and location information for locating a fragment of metadata in which the index structure is contained in a computer-readable storage medium. It is respectfully submitted that this claim fall within the scope of §101 and recites statutory subject matter.

Prior Art Rejections - 35 U.S.C. § 103(a)

Claims 59-81 are rejected under 35 U.S.C. § 103(a) as being unpatentable over a reference by Evian entitled "1st Draft of Metadata Specification SP003v1.3," XP002323574 in view of Jenkins. Applicant respectfully traverses the rejection.

Claim 59, for example, is directed to an index structure suitable for locating a fragment of metadata divided into fragments. The index structure includes a list of multi-keys which correspond to a combination of fields of the metadata and location information for defining a multi-key of the list. The location information is suitable for locating the fragment of metadata. A multi-key index structure enables a user to access metadata for a plurality of keys. See page 3, paragraph [11] of the Specification. In contrast, a conventional TV-Anywhere system, as described in the Background section of the application, uses a single key index structure that allows only a single key to be used for accessing metadata. *Id.*

In the Office Action it is asserted that Evian teaches all the limitations of claim 59 except for the use of a multi-key. Jenkins is relied upon for disclosing an index created from multiple columns of a database table to supply the multi-key missing from Evian.

Evian uses an XML document to hold TVA metadata and emphasizes the use of Xpath (a syntax used to describe a path to one or more nodes in an XML document) for identifying indices in the TVA metadata. See sections 2.3.1 and 2.3.1.1 of Evian ("The Xpath syntax can describe the location of any type of node including elements, attributes and text nodes, enabling any of these to be a key.").

Evian, merely discloses the conventional TVA metadata system described in the Background section of the application. That is, Evian discloses only the conventional TVA single-key metadata system.

Jenkins is not even directed to the use of XML documents or using Xpath, but rather is directed to a database management system. See col. 1, lines 6-8 (Under the heading "Field of the Invention" Jenkins states: "The present invention relates to database management systems and more particularly to methods and apparatus for implementing indexes in database management systems."). It is respectfully submitted that a person of ordinary skill in the art would not have referred to Jenkins' database management system to modify the XML/Xpath system of Evian because they are relate to different storage structures.

Jenkins is relied upon for disclosing that an index can be created from multiple columns of a database management system. See col. 2, lines 18-20. The Examiner's position appears to be that because Jenkins discloses using an index created from multiple columns of a table, it would have been obvious to have modified Evian to use a multi-key index instead of a single-key index. However, Evian is drawn to a different storage structure than is Jenkins. An XML document employs nodes arranged in a tree structure (see sections 2.3.1 and 2.3.1.1 of Evian), not columns in a database table as Jenkins describes.

The Office Action states that the motivation to modify Evian based on Jenkins is "to improve processing of queries involving multiple column (field) constraints." See page 8 of the Office Action. Jenkins combines columns of a table to create an index with a composite key (e.g., grade_level and student_identification) to improve query processing. See col. 2, lines 17-

19 and 22-30. However, this improvement in query processing results from storing the

composite key of the index in a particular sorted order, such as an ascending or descending order.

Id. Because Evian uses an XML document to hold the metadata and Xpath to locate the

metadata, Evian does not need to sort the indexes in ascending or descending order. Rather,

Evan discloses storing the metadata in a document hierarchy and locating the metadata by using

Xpath to describe a path to one or more nodes in the metadata. See section 2.3.1.1 (e.g., Xpath

uses construct such as "all descendents of" or "all children of" to find a node). It is respectfully

submitted that a person of ordinary skill would not look to Jenkin's database table index to

modify an index in an XML document. Accordingly, a person of ordinary skill would not have

been motivated to modify Evian's single key index with a multi-key index simply because

Jenkins discloses creating an index in a database table that combines columns of the table.

The Office Action also points to Evian's discussion of searching metadata by a CRID or

by a title as evidence of a need in the prior art to search for two constraints at the same time. See

section 2.3.1.1.1. However, that portion of Evian merely describes two ways to search for

metadata. One way is to search by CRID and another is to search by the title. Evian neither

teaches nor suggests a need to search for both a CRID and a title at the same time. Hence, Evian

does not recognize a need for a multi-key.

It is respectfully submitted that even if a person of ordinary skill were motivated to

modify the single index of Evian to somehow combine a plurality of indices, neither Evian nor

Jenkins provides an enabling disclosure of how to make such a combination. Neither Evian nor
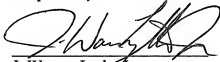
Jenkins describes how to make a multi-key for use in an XML document as Jenkins relates only to a database table.

The other independent claims, namely, claims 69, 77, 79, 80 and 81 are patentable for at least the same reasons since it would not have been obvious to modify Evian based on Jenkins as asserted in the Office Action. The remaining claims depend from one of the independent claims discussed above and therefore are not rendered unpatentable by the asserted combination of Evian and Jenkins for at least the same reasons.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

J. Warren Lytle, Jr.
Registration No. 39,283

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: June 9, 2006

19